Foreign Body in the Left Bronchus Discharged in a Mass of Pus on Bronchoscopic Examination.—C. COMPAIRED (*Arch. inter. de laryng., d'otol., et de rhin.*, May-June, 1908) reports a case of foreign body—a scale of a pine cone—in the left bronchus of a child, aged seven years, which had been in position for more than twelve months, and had produced an extensive purulent bronchopulmonary abscess. The extent of the abscess was revealed by radioscopy, but the foreign body was located. Bronchoscopic examination under chloroform lead to a continuous drainage of the abscess, in the last mass of which the pine scale was embedded and expelled on withdrawal of the instrument, after which the patient made a rapid recovery.

Thymectomy and Thyroidectomy in a Child, Aged Twenty-three Days.—SCHWINN (*Jour. Amer. Med. Assoc.*, June 20, 1908) reports a case of enlarged thymus gland revealed by radiography, which was associated with an enlargement of the left lobe of the thyroid gland. The thymus gland was removed after splitting the sternum, a small piece of the left lobe being left in position for physiological purposes. The enlarged lobe of the thyroid gland was then resected in such a way as to save the parathyroid glands and recurrent laryngeal nerve. The patient made an excellent recovery and had gained three pounds in weight at the time of the report.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF
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Protective Inoculation against Plague.—R. P. STRONG (*Jour. Med. Research*, 1908, xviii, 325) reports at length upon the various methods of immunization which have been proposed against plague and upon the relative merits of these different measures: the inoculation of killed cultures, of living attenuated cultures, of filtered cultures, and extracts of artificial and of natural plague aggressines, and of inoculation according to Klein's method. The comparison of different methods seems to indicate that, while it is obvious, for several reasons, that for immunization in man in general the inoculation of killed cultures or extracts is far preferable and safer than the method of bacterial vaccination, nevertheless it would appear that in plague only by vaccination, with attenuated culture, can a satisfactory immunity be obtained. The usual adult dose is one twenty-four-hour agar slant culture, and children one-half to one-third of this amount of a strained culture designated "pest avirulent." Even in using these large amounts no severe reactions have been found. Usually, in a few hours after the vaccination, the temperature rises a little and declines on the following days to normal.

Sometimes there is a moderate leukocytosis. The deep, intramuscular injections are followed by induration which gradually subsides in a couple of days; no visible suppuration has ever occurred. The tissues when examined in animals showed that the organisms were still numerous after from six to eight hours, but in twenty-four hours none could be cultivated from the tissues. The process of immunization, then, was similar to that in a true vaccination, the organism reproducing itself in the tissues for some generations, then successive groups of receptors stimulating the production of corresponding groups of amboceptors in the animal body. In the vaccination of a large number of human beings, owing to individual variations in susceptibility to plague infection, all will certainly not be protected against the lethal infection by a single vaccination, but certainly a good proportion will be partially immunized and the immunity may last for some months. Therefore, it may frequently be necessary, as in smallpox vaccinations, to repeat and even use larger doses if necessary. It appears that the attenuated cultures, when carefully watched and tested, are of little danger in the vaccination of human beings. Nevertheless the work must be carefully carried out in many different races and classes of people before it can be adopted for general use. However, as the other measures have proved somewhat inadequate in the suppression of plague, this method of vaccination holds out, in certain endemic centres, greater hope of success in the suppression of this dread disease.

Polycythemia.—LOMMEL (*Deut. Arch. f. klin. Med.*, 1907, xcii, 83) describes a case of polycythemia with moderate enlargement of the spleen. The red blood corpuscles varied between 9,700,000 and 10,200,000. The hemoglobin was 140 per cent., the white blood cells 5300. In smears of the blood, scattered nucleated red blood cells were seen. The viscosity of the blood was much increased and was estimated at 11.2 against a normal of 5. The absorption capacity of the red blood cells for oxygen was tested at room temperature and the co-efficient of absorption was found to be 1.01. Finally the respiratory exchange of gases was investigated by the method of Zuntz-Gleeppert. The mean of the total respiratory volume for three days was 8561 cm. per minute, which is more than that given by Magnus Levy for the upper limit of normal (4500 to 7000 cm.) The average output of CO_2 pro kilo per minute was 3.23, and the intake of oxygen 4.42. These figures, again, stand at the very upper limit of normal. Lommel also made estimations of the total amount of urobilin which was excreted in the urine and feces, to see whether, with the polycythemia, there was a decreased destruction of red blood corpuscles. In this case the total amount of urobilin eliminated in one day was 325 mg., a very large quantity. Since it was impossible to establish any cause for the polycythemia, such as disease of the heart or lungs, Lommel thinks that the condition was dependent upon a decrease in the capacity of the red cells for the absorption of oxygen.

Immunity in Rocky Mountain Spotted Fever.—A few years ago it was shown by Ricketts that the spotted fever, so common in the Bitter Root Valley of Montana, could be transmitted to guinea-pigs and monkeys by intraperitoneal inoculation of citrated blood from subjects ill with the disease. During the experiments it was noted that one attack of spotted fever renders monkeys immune to a second inoculation. RICKETTS and GOMEZ (*Jour. Infec. Dis.*, 1908, v, 221) now find that there is no authoritative example of two attacks of the disease in the same person in the region of the Bitter Root Valley, and their inoculation experiments on guinea-pigs and monkeys go to show that one attack of the disease confers a strong, active immunity. This immunity in animals is characterized by the presence of immune bodies in the serum, which are sufficient to neutralize an active virus, when virus and immune serum are inoculated together; or which will establish a passive immunity in healthy guinea-pigs. The blood or blood serum of an immunized guinea-pig also has slight curative power, and when injected during the first few days of disease will modify the severity of the infection or when given two or three days after injection of virus, will protect the animal against the disease. By the method of mixed immunization, in which virus and immune serum are given together, guinea-pigs may be made to acquire an active immunity against subsequent inoculation. Since it has been shown that the horse is susceptible to the disease, Ricketts and Gomez hold out the hope that a serum may be obtained which may be used for protective inoculation in man. In order that this serum may be efficacious it would have to be injected within a day or two following the bite of the tick, which insect they have already found transmits the disease to man.

The Excretion of Hexamethylenamin (Urotropin) in the Bile and Pancreatic Juice.—It has been known for some time that certain substances, such as potassium iodide, pass more or less readily into the bile, and at least one substance, potassium iodide, has been shown definitely to be excreted by the pancreatic juice. CROWE (*Johns Hopkins Hosp. Bull.*, 1908, xix, 109) has experimented with the excretion of urotropin, a substance, which on account of its disinfecting properties, might be of great value in destroying certain bacteria infecting the gall-bladder, and finds that when urotropin is given by the mouth it passes very quickly into the bile. Hexamethylenamin or its decomposition product formalin, is excreted directly by the wall of the gall-bladder as well as by the liver cells, for after ligation of the cystic duct in dogs, the substances could be found in the bile of the isolated gall-bladder as well as in the bile coming from the common duct. Following administration by mouth, the drug was rapidly absorbed in the dog and could be demonstrated in the circulating blood when it remains for twenty-four hours. It was found further, that the drug was secreted in the pancreatic juice of dogs and after intraveous administration of 1 gram appeared in the saliva and milk. The practical value of the experiments was borne out by the study of the affect of administration by mouth of urotropin upon infections of the gall-bladder in man. Urotropin was given to three patients with biliary fistula. In one of these the infecting organism was the colon bacillus. In the first case five doses of 15 grams each, or a total of 75 grains of urotropin, caused the bile to become sterile in twenty-four hours; in the second case after the administration of the same dose, the numbers of colon bacilli in bile coming from the fistula were greatly reduced; while in the third case the bile was rendered sterile after nine days' treatment. In 2 other cases it could be demonstrated that hexamethylamin is excreted in the spinal fluid and synovial fluid.

Experimental Leukemia in Fowl.—Although leukemia has been described as occurring, not frequently in horses, swine, and dogs, it is comparatively rare in fowl. Attempts have been made by several observers to transmit the disease by various means from one animal to another, but so far all attempts have failed. In this country the disease has been described quite accurately in fowl by WARTHIN (*Jour. Infect. Dis.*, 1907, ix, 360) who, however, made no inoculation experiments. ELLERMANN and BANG (*Zent. f. Bakt.*, 1908, xlii, 595) found among a number of chickens one which showed distinct evidence of leukemia. There was marked anemia with a leukocytosis of 600,000. Of these cells 84 per cent. were large mononuclear lymphocytes. In the normal chicken the average number of leukocytes is about 30,000 and the percentage of large mononuclear cells about 40. The leukemic chicken was killed and an examination of the organs showed a marked similarity to the changes in leukemia as they occur in man. The liver and spleen were swollen and in the capillaries of the liver and the bone-marrow there were characteristic and extensive infiltrations of the large mononuclear cells. Portions of the liver, spleen, and bone-marrow were emulsified in salt solutions and injected intravenously into five healthy chickens. Two of the fowls developed, after two and one-half months, a blood picture resembling that in the case of spontaneous leukemia, and at autopsy the organs showed the same characteristic leukemic infiltrations. A second series of inoculations was made from the organs of one of these chickens into six healthy fowls, all of which developed exactly the same disease. The characteristic changes which typified the disease in all the fowl was the progressive anemia, the marked leukocytosis with relative increase in the large mononuclear cells, and the intravascular leukocytic proliferations in the bone-marrow and liver. The cause of the disease could not be discovered; cultures upon various media, and search for spirochetes and protozoa were made without success. Further experiments seemed to show, however, that the actual presence of the cells was not necessary in order to transmit the disease, for two out of five chickens, inoculated with a clear filtrate of the emulsion of organs, free from cells, developed typical leukemia.

The Adrenals in Arteriosclerosis.—The atheroma which has been observed so uniformly in rabbits, after intravenous injections of adrenalin, has suggested more than once that certain types of arteriosclerosis in man may depend upon some pathological changes in the adrenal glands. Indeed, Josué has described what he terms "hyperepinephrie" a functional hypertrophy, in the adrenals of 3 cases of arteriosclerosis in man. HORNOWSKI and NOWICKI (Virchow's *Archiv*, 1908, cxcii, 338) have, in this connection, studied quite carefully the adrenals from 36 cases of arteriosclerosis and as controls the adrenals from 122 cases which did not show arteriosclerosis. The average weight of the adrenals from the cases of arteriosclerosis did not differ materially from the glands of the control cases. Histological examination of the glands, from the cases of arteriosclerosis, showed some atrophy of the cells of the cortex with thickening of the capsule and general increase in connective tissue. No changes were noted in the medullary portion of the organs. Hornowski and Nowicki lay little or no stress upon these changes, for they found much the same alteration in many of the adrenal glands from the control cases, and consider that the lesion is secondary to some pathological process in another part of the body. Neither could they determine that the adrenals of rabbits, which had developed atheroma following repeated injections of adrenalin, differed essentially from the glands of normal animals. It may, therefore, be concluded that the adrenals from cases of arteriosclerosis do not show any specific anatomical alterations, and, if the sclerosis is in any way dependent upon alterations in the adrenal gland, it may only be possible to discover these changes by chemical investigations.

The Effect of Pilocarpine on the Output of Lymphocytes through the Thoracic Duct.—ROUS (*Jour Exp. Med.*, 1908, x, 329) has been able to confirm some previous investigations concerning a lymphocytosis following intravenous injections of pilocarpine. In the dog he finds that shortly after an injection of pilocarpine the total lymphocytes in the blood are very definitely increased. Intravenous injections of pilocarpine nitrate cause a rapid and considerable increase in the output of lymphocytes from the thoracic duct, and he has determined that this increased supply of lymphocytes accounts for the elevation of the number of lymphocytes in the circulating blood. Among some of the factors which are accessory for producing this large cell output in the lymph are quickened flow and dyspnœic breathing, but he believes that the actual cause is as yet undetermined. It is possible that it is largely dependent upon some mechanical factor, and the explanation which Harvery has suggested, that the increased flow of lymphocytes is due to pressure brought to bear on the lymph nodes and spleen by the contraction of muscle, may be the correct one. Rous, however, could not confirm Harvey's observation that atropine prevents the appearance of a lymphocytosis after pilocarpine injections. These experiments go to show that mechanical factors may be responsible for a rapidly appearing lymphocytosis. They are also important inasmuch as they demonstrate that the contribution of the cells through the thoracic duct may be important in the production of lymphocytosis, and that this lymphocytosis is not dependent upon a direct migration into the blood of cells from the spleen, bone-marrow, and lymph nodes.

The Hemolytic Action of Blood Serum in Malignant Disease.—During the last year Kelling has described a reaction which takes place with the serum of patients suffering with malignant diseases. If small amounts of blood serum from such patients are added to a suspension of red blood cells in salt solution, hemolysis takes place. The red blood cells were derived from several varieties of animals. The blood serum of normal individuals did not bring about hemolysis. Kelling, answering a criticism made by v. Dungern, reported later the results of 600 examinations. Of these cases 265 were suffering from carcinoma and of this number 119 (43.4 per cent.) gave positive hemolytic reactions. Of the 320 cases which were not carcinomatous, a positive reaction was obtained only in 11 or 3.4 per cent. Crile and Beebe, using human red bood corpuscles instead of red blood cells from animals, have obtained much the same results. Weil has studied the hemolytic action of the blood serum from eight dogs with transplantable lymphosarcoma. He found that the sera of the dogs that had tumors, showed, without exception, a marked hemolytic action toward the red cells of healthy animals of the same species, whereas the red cells from dogs that had tumors were much more resistant. Serum from normal dogs possessed almost no hemolytic action. FISCHEL (*Wien. klin. Woch.*, 1908, xlv, 882) has studied the hemolytic action of the blood serum, after the method of Kelling, in 4 cases of malignant disease and in 7 cases suffering from various other conditions. The serum from one-half the cases of malignant disease, 3 of which were carcinoma, possessed in repeated experiments hemolytic power for the red blood cells of various species of animals, but the reaction did not prove to be specific, for it was obtained in 2 cases of pernicious anemia, 1 of tuberculosis, 1 of chronic heart disease, and 1 of diabetes mellitus.

An Especial Affinity of the Bloodvessels of the Kidney for Adrenalin.—JONESCU (*Wien. klin. Woch.*, 1908, xxi, 513) noted during an experiment upon a rabbit whose kidney was in an oncometer, that very minute doses of adrenalin produced great decrease in the size of the kidney. These experiments were repeated and it was found that doses of adrenalin, which were so small that they produced no more effect upon the general blood pressure than injections of 1 c.c. of salt solution, caused great contraction of the vessels of the kidney, which could be estimated by the shrinkage in the size of the organ. These experiments seemed to show that the bloodvessels of the kidney are peculiarly susceptible to the influence of adrenalin. Indirectly the experiments bear upon the question of the relation between nephritis and the secretion of the adrenal gland. It is possible that a slight hypersecretion of the adrenal may bring about contraction of the vessels of the kidney with deleterious consequences, but without giving rise to an elevation of the general blood pressure.

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